



Development of Exercise Equipment for Special Needs Learners: A Project-Based Learning at a Japanese University

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ABSTRACT

Tottori University has been using project-based learning (PBL) to educate undergraduate engineering majors since 2003. This article reported a case study of a PBL-based collaboration between a small group of engineering majors and a special needs school. In 2010, third-year engineering majors were asked to make an exercise equipment for a special needs school. They interviewed teachers at the school and observed classes to grasp the special needs students' reality and needs. Based on their investigations, they designed and built exercise equipment for the students. They used trial and error to devise many improvements on their designs and materials. PBL has provided them with a learning experience comprising planning, design, production and product assessment. As a result of this educational program, the engineering students displayed a significant change in their consciousness and behaviors. The study showed that PBL plays an important role in engineering education.

Keywords: Project-Based Learning (PBL), engineering education, special students exercise equipment, Japan